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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,574	07/31/2006	Janne Kuivalainen	1034456-000049	8935

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BUCHANAN, INGERSOLL & ROONEY PC
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EXAMINER	
SHECHTMAN, SEAN P	

ART UNIT	PAPER NUMBER
2125	

NOTIFICATION DATE	DELIVERY MODE
01/28/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/587,574	KUIVALAINEN ET AL.	
	Examiner	Art Unit	
	Sean P. Shechtman	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/31/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-18 are presented for examination.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed 7/31/06 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections – 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2, 8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for calculating the current thermal load as a function of the previously calculated thermal load (claim 2 and Fig. 2), does not reasonably provide enablement for calculating, providing, or determining a first thermal load, and therefore fails to provide enablement for the previously calculated thermal load and therefore fails to provide enablement for the currently calculated thermal load as a function of the previously calculated thermal load. The specification does not enable any person skilled in the art to which it pertains, or with which

it is most nearly connected, to make and/or use the invention the invention commensurate in scope with these claims. Claims 3, 6, 12, 13, 11, 16, depend from claim 2, 8, and therefore inherit the same deficiencies and are rejected for the same reasons.

5. Claims 4, 9, 12, 13, 16, are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for calculating the thermal load as a function of the previously calculated thermal load (claim 4 and Fig. 2), does not reasonably provide enablement for calculating, providing, or determining a first thermal load, and therefore fails to provide enablement for the previously calculated thermal load and therefore fails to provide enablement for the currently calculated thermal load as a function of the previously calculated thermal load. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention the invention commensurate in scope with these claims. Claims 5, 14, 15, 10, 17, 18, depend from claim 4, 9 and therefore inherit the same deficiencies and are rejected for the same reasons.

6. Claims 4, 9, 12, 13, 16, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 4, 9, 12, 13, 16 use the variable th in the claimed mathematical equation, however, the instant specification and claims are completely silent in teaching what is being referred to by the variable th. Therefore, the claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly

connected, to make and/or use the invention. Claims 5, 14, 15, 10, 17, 18, depend from claim 4, 9 and therefore inherit the same deficiencies and are rejected for the same reasons.

7. Claims 4, 9, 12, 13, 16, are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The definition of the variable th, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The examiner respectfully submits that the definition of the variable th is critical or essential to the practice of the invention because the variable used in the equation in claims 4, 9, 12, 13, 16. Claims 5, 14, 15, 10, 17, 18, depend from claim 4, 9 and therefore inherit the same deficiencies and are rejected for the same reasons.

8. Claims 6, 11, 14, 15, 17, 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 6, 11, 14, 15, 17, 18 use the variable t6 in the claimed mathematical equation, however, the instant specification and claims are completely silent in teaching what is being referred to by the variable t6. Therefore, the claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

9. Claims 6, 11, 14, 15, 17, 18 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The definition of the variable t6, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The examiner respectfully submits

that the definition of the variable t6 is critical or essential to the practice of the invention because the variable used in the equation and/or a calculation in claims 2, 3, and 6, etc.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 7 recites the limitation "the thermal load" in, for example line 4 of claim 1. There is insufficient antecedent basis for this limitation in the claim. It will be assumed to be a thermal load.

Claim 1 recites the limitation "the microprocessor" in line 12-13. There is insufficient antecedent basis for this limitation in the claim. It will be assumed to be the processor.

Referring to claims 1, 7, the claim fails to particularize the invention because the variable Y has not been defined by the claim. It will be assumed that Y is a real number greater than zero (page 5, paragraph 17 of the instant specification).

Referring to claim 2, the claim fails to particularize the invention because the variables .THETA. k, .THETA. k-1, and i have not been defined by the claim. It will be assumed that .THETA. k is the currently calculated thermal load (see claim 2 and Fig. 2), .THETA. k-1 is the previous thermal load (see claim 1 and Fig. 2), and i is the measured current (see claim 3).

Referring to claim 8, the claim fails to particularize the invention because the variables .THETA. k, .THETA. k-1, have not been defined by the claim. It will be assumed that .THETA.

k is the currently calculated thermal load (see claim 2 and Fig. 2), .THETA. k-1 is the previous thermal load (see claim 1 and Fig. 2).

Referring to claims 4, 8, 12, 13, 16, the claim fails to particularize the invention because the variable th has not been defined by the claim.

Referring to claims 6, 11, 14, 15, 17, 18, the claim fails to particularize the invention because the variable t6 has not been defined by the claim.

Referring to claims 12, 13, 16, lines 1-2 recites the limitation "the mathematical equation", however a mathematical equation is already provided for in the claims from which claims 12, 13, and 16 depend. Therefore the recitation of "the mathematical equation" in the same or subsequent claim is unclear because it is uncertain which of the mathematical equations was intended (MPEP 2173.05(e)).

Due to the number of 35 USC § 112 rejections, the examiner has provided a number of examples of the claim deficiencies in the above rejections, however, the list of rejections may not be all inclusive. Applicant should refer to these rejections as examples of deficiencies and should make all the necessary corrections to eliminate the 35 USC § 112 problems and place the claims in proper format.

Due to the vagueness and a lack of clear definition of the terminology and phrases used in the specification and claims, the claims have been treated on their merits as best understood by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1, 4, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,796,142 to Libert (hereinafter referred to as Libert) in view of U.S. Pat. No. 4,807,153 to Onaga et al (hereinafter referred to as Onaga).

Referring to claims 1, 4, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, Libert teaches device and method for thermal overload protection of an electrical device, particularly an electric motor (Abstract; Col. 1, lines 46-64), the device and method comprising means for measuring at least one load current supplied to the electrical device (Col. 33, lines 50-51), means for calculating a thermal load on the electrical device on the basis of said at least one load current, and means for disconnecting a current supply when the thermal load reaches a given threshold level, wherein said means for calculating the thermal load on the electrical device comprise a processor system employing X-bit, the system comprising means for scaling the measured current into unit values to a range of 0 to Y, wherein Y represents Y/100% of a nominal current and Y is a real number greater than zero (Col. 11, lines 24-56), and means for calculating the thermal load using a

mathematical equation that, together with its operands, is programmed into the processor system structured (Col. 33, line 52 – Col. 34, line 5; Col. 22, lines 29 – Col. 23, line 49).

Referring to claims 1, 4, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, Libert fails to teach a processor system employing fixed-point arithmetic, and means for calculating structured such that a result or a provisional result never exceeds the X-bit value.

However, referring to claims 1, 4, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, Onaga teaches a processor system employing fixed-point arithmetic, and means for calculating structured such that a result or a provisional result never exceeds the X-bit value (Col. 11, lines 1-5, TMS-32010 16bit processor). It is inherent that fixed-point number can exactly represent any integer only within the range determined by the magnitude bits, 16 in the case of the TMS-32010.

Libert and Onaga are analogous art because they are from the same field of endeavor, motor control.

At time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Libert with the fixed-point arithmetic processor of Onaga. The suggestion/motivation would have been because fixed-point numbers, in comparison with floating point numbers, are compact and efficient and operations on fixed point numbers take less time than floating point operations.

Referring to claims 1, 4, 5, 7, 9, 10, 12, 13, 14, 15, 16, 17, 18, claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed (MPEP 2111.04) and the claimed condition of X=32 would not ever reasonably occur in the prior art reference because Libert and Onaga do not teach X=32.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754. The examiner can normally be reached on 9:30am-6:00pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SPS

Sean P. Shechtman 

January 21st 2008 1/21/08